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Students' Online Fashion Studio Class Experience and Factors Affecting Their Class Satisfaction

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online course, online studio,
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teaching presence,
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Abstract

This study explored students' online fashion studio class experiences, and investigated the factors affecting their class satisfaction. An online survey of college students who were enrolled in online studio classes within apparel and fashion-related departments during the spring of 2020 was conducted in June 2020. Responses from a total of 213 participants were included in the final data. Respondents rated lecture clips as the most useful, followed by teacher demonstration and feedback, PowerPoint (PPT) supplements, and Q&As. Frequently mentioned areas of improvement were online platform stability and video quality. Many respondents also stated that more streamlined teacher-student communication channels, immediate and meticulous teacher feedback, the adoption of course contents developed specifically for an online environment, and provisions for equipment usage would be desirable. Student satisfaction of an online fashion design studio class was significantly affected by teaching presence, social presence, online learning system stability, perceived usefulness of teacher's demonstration, and affective response toward COVID-19. Students satisfaction of an online garment construction studio class was significantly affected by teaching and social presence, online learning system stability, and perceived usefulness of teacher's demonstration. Based on these findings, we recommend developing teaching contents and methods that allow students to feel included in class and establish an online system with various functions to enhance the sense of social connection that can enable two-way communication.

Ⅰ. Introduction

The COVID-19 outbreak has altered our lives in nearly every aspect. It has disrupted the operations of millions of schools, often forcing their closure. According to a June 2020 UNESCO survey, schools were closed in 119 countries, affecting over 966 million learners, which constituted 55.2% of total enrolled learners (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2020). This outbreak also significantly disrupted colleges and universities worldwide, leading most institutions to cancel in-person classes and replace them with online instruction.

Most universities in Korea also experienced considerable confusion in the beginning of 2020 as they pushed for the online opening of all classes. The existing infrastructure, which was built for small-scale operations, was insufficient to meet the surging demand caused by the sudden transition to online courses. The resources necessary to support educational content production were insufficient, leading to teachers developing and operating their classes independently. In the process of adapting to an unfamiliar online educational environment, students have been expressing dissatisfaction with the quality of their online classes, demanding that the quality of their education be guaranteed (Park, 2020).

The term "online course" refers to a web-based education course. Various terms, such as "online teaching," "cyber teaching," "distance learning," "e-learning," and "web-based learning," are equivalent to "online course," and they all refer to non-face-to-face instruction. The Ministry of Education (2018) defines distance courses as a type of class in which teaching-learning activities take place at different times or spaces.

While distance education was previously used as an auxiliary education method, it emerged as a major educational format in 2020 due to the prevalence of COVID-19; it is likely to be used in the future to prepare for and effectively respond to various risks. Against this backdrop, universities have begun to offer a diverse range of online courses, including studio or lab classes, which were rarely offered online. This transition to online-only courses has given rise additional concerns regarding the quality of education that can be provided remotely; these concerns include unequal access to a reliable online environment and the inconsistency in online classes' suitability for each subject. In this study, we explored fashion students' experiences of online studio classes. We examined the factors that affect online studio class satisfaction and areas of improvement as indicated by students to ensure efficient practices in future online studio classes.

Ⅱ. Literature Review

1. Online Education

Online education is a form of distance education, the critical features of which Keegan (1996) defined as follows. 1) There is a physical distance between the professor and the learner throughout the whole course of learning. 2) It requires educational organizations with roles that are distinct from those of conventional educational institutions. In conventional education, subjects rely entirely on individual teachers; in distance education, the institutions' roles are more diverse and more complex than those of traditional institutions.' 3) Distance education depends on the use of media. Various types of media play the roles of intermediaries by delivering the course contents and connecting the learner and educator, who are separated from each other in time and space. Therefore, distance education is possible only when both educators and learners have access to adequate media. Finally, 4) distance education should provide two-way communication to enable teacher-learner interaction, which is the core of the teaching-learning process.

Higher education continues to evolve, including recent increases in the number of courses offered both fully and partially online. Many new technologies have been adopted to support online education. These technologies include learning management systems (LMSs), which serve as core platforms for online learning. Some popular

systems are Blackboard, Moodle, Sakai, Desire2Learn, Canvas, and eCollege (Watson & Watson, 2007). In the 1990s, distance education grew rapidly with the online technical revolution, and the term "distance learning" was used interchangeably with "online education," "cyber education," and "e-learning." Furthermore, empirical studies were conducted to identify factors affecting the acceptance of distance education. After 2000, the technology acceptance model (TAM) was applied to many studies on the effects of variables (e.g., perceived usefulness) on the acceptance of distance education. Learners' inherent variables, such as fun, enjoyment, and flow, were also examined to explain the acceptance and outcomes of distance education (see Seo & Lee (2009) for review).

However, there is a lack of research on online fashion studio classes, with previous work focusing mostly on the case analysis of multimedia design (Jung, 2004) and online fashion design studio classes (Kwon & Rhew, 2018), or the application of avatar for fashion online education (Lim & Park, 2005). Based on the analysis of an online fashion design studio course, Kwon and Rhew (2018) suggested that it would be effective to provide educational content in advance by flipped learning; class time would be used to discuss the content or put theory into practice. Baek (2003)'s study also found that design students prefer "blended learning" to fully-offline classes; this suggests that blended classes could be effective in design education.

Due to the current lack of research on fully online studio classes, we wanted to explore the student experiences of online design studio classes. In particular, we investigated students' preferred online teaching methods students, their criteria for a class element's usefulness, and their perceived areas of improvement. These findings may enhance understanding and improve the quality of online design studio classes.

Research question 1: What are students' experiences of online fashion studio classes? Specifically, the followings were asked;

- How useful is each individual element of an online studio class?
- What type of online studio class do students prefer?
- What are the most critical areas of improvement for online studio class?

2. Teaching and Social Presence

Garrison, Anderson, and Archer (2001) attempted to explain how the social factors critical to human learning can be present in fully online education experiences. They proposed a "community of inquiry" conceptual framework, which involved computer-mediated communication as a tool to support an educational experience. According to this framework, cognitive presence, social presence, and teaching presence comprise a total educational experience. If the perceived level of "presence" is increased, learners will have a more meaningful learning experience, more actively participate in learning, and further immerse themselves in their studies, leading to positive learning results. "Presence" in online education is an important indicator of active and meaningful learning because online students lack self-directed learning (Garrison & Arbaugh, 2007). Cognitive presence refers to "the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical Community of Inquiry" (Garrison et al., 2001, p.11). It is a crucial component of high-level thinking and learning.

Social presence is the degree to which participants identify with and feel connected to each other in an online environment (Garrison et al., 2001; Garrison, 2011). Beyond the feeling that the other party exists, social presence is formed when it communicates with the object and develops a social relationship. It provides learners with the feeling of connection with the teachers and other students, which encourages them to share information with others (Reio Jr. & Crim, 2013). In online settings, it is challenging to read body language or listen to vocal nuances; this makes it difficult to achieve the levels of communication that are typically associated with social interactions. As such, a weak social presence

can be problematic to forming a sense of community in online classrooms. It is crucial to reduce the perceived distance. Therefore, the social presence that comes from communicating with other parties and forming social relationships is essential for successful online learning. There is an increasing body of literature demonstrating the significance of social presence in online learning (Alsadoon, 2018; Cobb, 2009).

Teaching presence refers to the methods that an instructor utilizes to promote a quality online environment and facilitate effective community interactions (Bangert, 2008); it is composed of design and organization, facilitating discourse, and direct instruction. The teaching presence, which organizes learning content, encourages learners to continuously participate, and promotes discourse, is an important factor in online education (Garrison & Arbaugh, 2007). The importance of teaching presence in the online learning setting has already been discussed in previous studies. Garrison and Cleveland-Innes (2005) noted that teacher-learner interaction has a greater impact on learning achievement and satisfaction than learner-learner interaction and that the level of learner interaction increases qualitatively when appropriate monitoring, promotion, and mentoring are provided. Studies conducted in Korean online education settings also found that teaching presence has a significant effect on learning achievement, learning satisfaction, and learning guidance (Kim, 2009; Kwon, 2011; Oh, 2020). In this study, the teaching presence is defined as the learner's overall level of awareness regarding teaching strategies and courses.

The previous literature on teaching and social presence supports the notion that these presence positively impact students' educational achievement and satisfaction in offline and online classroom settings. Thus, this study examined whether teaching and social presence positively affect students' class satisfaction in an online fashion studio class, which is notably different from regular online classes. Furthermore, we determined whether the teaching presentation or social presentation has a more significant effect on student class satisfaction.

3. Online Learning System and Contents

Learning outcomes and class satisfaction are affected by the type of system that provides online educational content. Web-based instruction, a method that encourages learners to participate through various navigation settings or clicks, was more effective in increasing class satisfaction (Lee & Kim, 2008). It is necessary to implement a learning system that allows learners to take the initiative by freely selecting learning content and methods appropriate for their abilities and characteristics (Kim, 2011). A two-way learning management system, which resolves the problems faced by learners in online education settings, allows learners to share information and form social bonds with teachers as well as other learners. This can increase online class satisfaction rates (Kang, Park, & Lee, 2009; Kim, 2007; Jang & Kim, 2009).

According to the Ministry of Education's survey on remote education experience and awareness during the first semester of 2020 (Kim, 2020), 49.7% of students stated that they have difficulties in distance learning classes because of unstable access to the distance learning platform. Although system access is the most basic condition for remote education, many systems were unstable in their operations due to the sudden increase of online classes. Therefore, we looked at online learning system variables by focusing on the stability, easy access, and online learning function of an online system as well as how student perception of the online learning system affected student satisfaction with online studio classes. Content is also a significant factor that affects learners' online learning satisfaction. Lee and Kim (2018) indicated that appropriateness of learning content along other factors, including students' motivation for voluntary participation, online class learning support, and system convenience, has a positive effect on class satisfaction.

Fashion studio classes, such as fashion design and clothing construction studio classes, often require extensive practical instruction. Teacher demonstrations of designing and constructing are essential components of such classes. Experimental demonstrations are also

essential to a textile laboratory class. Therefore, this study also investigated the perceived usefulness of hands-on demonstrations as pertaining to online learning satisfaction.

4. Affective Response toward COVID-19

Before the 1980s, many studies on consumer behavior approached consumer behavior from a cognitive perspective, assuming consumers to be rational and reasonable. Early studies on attitude found that attitudes were determined by cognitive factors, such as cognitive structure and cognitive response. Since Hirschman and Holbrook (1982), the argument that the hedonic element plays an important role in consumer consumption has prevailed. The literature on post-purchase emotional formation (Oliver, 1993) also argues that emotions have a more significant impact than other variables in the consumption of products and services. Considering a student to be a consumer of educational services, it is evident that – in addition to cognitive factors such as the characteristics of classes and online systems – emotional responses to the class itself, the teacher, and other external factors will also affect a student's attitudes or satisfaction with an online class. With this in mind, this study also considered students' affective responses toward COVID-19 in relation to online fashion studio class satisfaction.

It is expected that the more negative students' feelings toward COVID-19 are, the more positive they are about online classes and the higher their satisfaction rates. In this study, we investigated the impact of feeling about COVID-19 on online fashion studio classes.

5. Academic Satisfaction

Academic satisfaction refers to the learner's response regarding how satisfied he or she was with the learning experience (Joo, Kim, & Park, 2009). High academic satisfaction indicates that learners can achieve the learning outcomes they aim for and that the understanding of learning goals has been achieved smoothly. Academic satisfaction is one of the most representative indicators of learning outcome and a useful criterion of judgment to confirm the effectiveness of education.

Palmer and Holt (2009) indicated in a study on the class satisfaction of online education that class satisfaction is motivation for learners to continue learning and plays an important role in improving learning performance by promoting learners' participation in the learning process. In an online learning environment, learners have to study independently, so having a high level of educational satisfaction increases their motivation to actively participate in the learning process, allowing them to successfully achieve their learning goals. Therefore, class satisfaction is recognized as an important variable in measuring learning performance in the context of online education (Ryu, 2007). Based on the previous literature, the following research question was developed.

Research question 2: What are the effects of teaching and social presence, perceived usefulness of hands-on demonstrations, stability of online learning system, and affective response toward COVID-19 on students' satisfaction with online fashion studio classes?

Ⅲ. Methods

1. Purpose of the Study

The purposes of this study were 1) to explore students' online fashion studio class experiences and 2) to investigate the effects of teaching and social presences, usefulness of demonstration, stability of online learning system, and affective response toward COVID-19 on students' online fashion studio class satisfaction.

2. Measurement and Questionnaire Development

The measurement of teaching and social presence was adopted from a previous work (Garrison et al., 2001; Heo, 2008; Joo, Ha, Kim, & You, 2010) and applied to an online studio learning setting. The measurement of

affective response toward COVID-19 was adopted from previous work on risk information processing (Ku, Ahn, & Noh, 2020). Questions measuring the stability of an online learning system and online class satisfaction were adopted from the work of Lee and Kim (2018). All ratings were done on a 4-point rating scale. A 4-point scale was used because it would be less perverse to avoid presenting a midpoint in general attitude questions because respondents tend to adopt or misuse the midpoint (Jang & Cho, 2017).

Students were asked questions regarding their online studio class experience (i.e., course type, online course platform, course component, and preferred online course type). An open-ended question was used to collect their feedback on areas of improvement for an online studio class they took.

3. Sampling and Data Collection

College students who were enrolled in apparel and fashion-related studio classes during the spring of 2020 were asked to participate in this study. The online survey was conducted in June 2020. Students who had taken multiple online studio classes were asked to answer a questionnaire about their most recently attended classes. The collected data were processed using SPSS for statistical analysis, which included a frequency analysis, a factor analysis, a reliability analysis, and a series of regression analyses. The content analysis was used to analyze the answers to the open-ended question. The researchers repeatedly read the answers to identify the qualitative content or specific keywords that frequently appeared. The keywords were categorized into meaningful groups.

A total of 213 respondents (female: 203, male: 10) were included in the final data. Of the respondents, 45.1% indicated that they took the design studio class; 30% indicated that they took the garment construction studio class; 10.8% indicated that they took the CAD studio class; and 9.9% indicated that they took the textiles experiment laboratory class.

Ⅳ. Results

1. Students Experience of Fashion Online Studio Class

1) Perceived usefulness of class elements

In general, respondents rated video clips of lectures (M=3.24, 1-not useful at all, 4-very useful) as the most useful, followed by teacher's demonstration (M=3.23) and feedback (M=3.23), PPT supplement (M=3.04), and Q&A (M=3.01).

Overall, respondents indicated that both the lecture clips and teacher's demonstrations were highly useful. CAD studio students and textiles experimental laboratory students rated demonstrations as the most useful. Students from the online textiles experiment lab and garment construction studio class rated "teacher's feedback" higher than did design studio class students (See Table 1).

Table 1. Perceived Usefulness of Course Elements in Online Studio Course

Course Elements \ Class	Design	CAD	Garment Construction	Textiles Experiment
Video clips of lectures	3.22	3.32	3.21	3.43
Teacher's demonstration	3.12	3.39	3.27	3.38
Instructor's feedback	2.17	3.14	3.19	3.21
PPT supplement	3.02	2.75	3.09	3.29
Q&A	3.05	2.75	3.04	2.95

2) Types of online studio class

Most studio classes used pre-recorded lectures for online learning. 90% of the experimental lab classes and 70% of the garment construction studio classes used pre-recorded lectures. In comparison, 56% of design studio classes and 47% of CAD classes used real-time lectures. It is difficult to show textile experiments or garment-making processes in real time; as such, they are incorporated into the lecture in the form of video clips made in advance. Respondents indicated that they prefer pre-recorded lectures (69.5%) to real-time classes that use online conference platforms such as ZOOM (23%).

3) What needs to be improved in the online studio class

Frequently mentioned areas of improvement were: online platform stability, video quality (e.g., picture & sound quality, screen angle), accurate and useful communication between professors and students, immediate and meticulous feedback from teachers, course content (e.g., course material, assignments, evaluation methods) developed in consideration of an online environment, and provisions for equipment (e.g., sewing machine) usage for the studio class. Areas of improvement are summarized by subject in Figure 1.

Among the design studio class respondents, the frequently mentioned areas of improvement were video quality (e.g., sound quality and screen angle), communication with teachers and other students, and lectures content (hands-on demonstration and detailed explanations). Among garment construction studio respondents, the frequently mentioned areas of improvement were video quality, provision of a communication channel, and quick feedback. Few students also indicated that the availability of an off-line studio is essential for the garment construction studio classes due to the difficulty of practicing without the teacher's hands-on demonstration and the use of technical equipment, such as a sewing machine. Among experimental lab respondents, the frequently mentioned areas of improvement were the developing experiment that should be adjusted to be conducted at a student's residence.

2. Factors Affecting Students' Satisfaction with Online Fashion Studio Classes

Factor analysis was performed and all items were loaded on corresponding factors, thus confirming the discriminant validity of the measurered items. All measurement inter-item reliabilities were considered "good" (Cronbach's α ranged between .785 and .863) and were averaged to single scores for further analyses (Table 2).

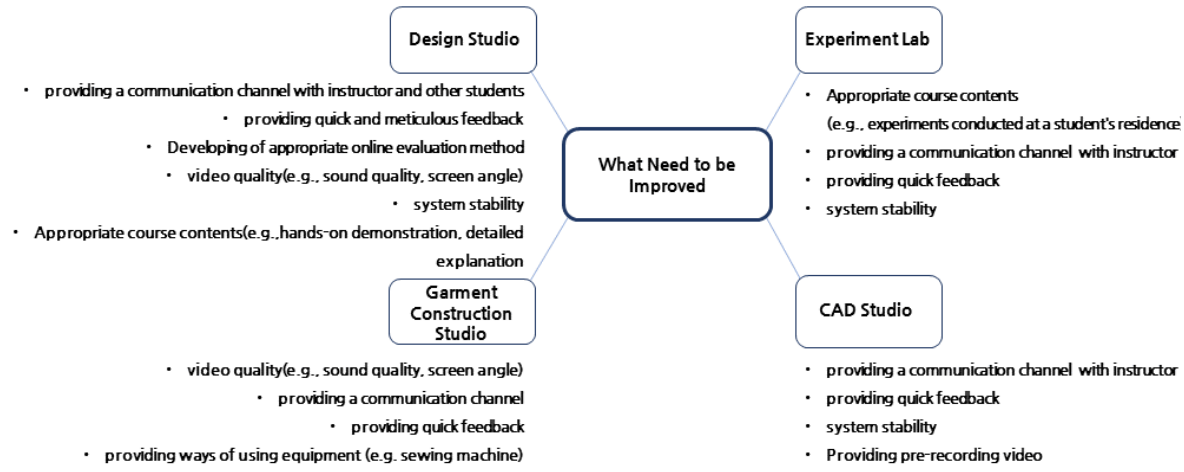

Figure 1. Frequently Mentioned Areas of Improvement in the Online Studio Class

Table 2. Results of Factor Analysis

Factor Name	Item	Factor Loading	Eigen value	Variance Explained%	Cronbach's α
Teaching Presence	The contents of the online studio class were systematic.	.808	3.285	20.531	.863
	The teacher's feedback or questions were helpful in learning.	.802			
	It was clearly explained about the task or evaluation.	.782			
	The learning objectives were clearly presented.	.734			
	The teacher encouraged me to participate well in learning through announcements.	.706			
Social Presence	I felt like I was learning with students taking the same online class	.858	2.562	16.013	.785
	Other students seem to know my existence.	.792			
	I felt like I could communicate with other students.	.785			
	I was motivated to further my activities (e.g., task, study) by the actions of other students.	.675			
Online Learning System	The online classroom tools (e.g., menu, hyperlink) worked without any problems.	.835	2.825	17.656	.843
	The online learning system was stable.	.808			
	The online learning system was easy to access	.803			
	In the event of a problem, I was able to get immediate help.	.717			
Affective Response to COVID-19	When you think of COVID-19, I feel anxious.	.870	2.207	13.791	.806
	When you think of COVID-19, I feel uncomfortable.	.847			
	When you think of COVID-19, I am worried.	.831			

Based on VanVoorhis and Morgan's (2007) sample size rules of thumb, design studio and garment construction studio responses were selected and separately used for multiple regression analyses along all respondents. Multiple regression analysis was conducted by defining students' perceived teaching and social presence, online learning system stability, affective response toward COVID-19, and usefulness of demonstration as the independent variables and defining their class satisfaction as the dependent variable.

Based on VanVoorhis and Morgan's (2007) sample size rules of thumb, design studio and garment construction studio responses were selected and separately used for multiple regression analyses along all respondents. Multiple regression analysis was conducted by defining students' perceived teaching and social presence of the online class, stability of online learning system, affective response toward COVID-19, perceived usefulness of demonstration as the independent variables and defining their class satisfaction as the dependent variable.

1) Satisfaction of Online design studio class

A multiple regression analysis revealed that respondents' perceived teaching (β=.456, p<.001) and social presence (β=.185, p<.05) of the online design studio class, online learning system stability (β=.456, p<.001), perceived

usefulness of demonstration (β=.180, p<.05), and affective response toward COVID-19 (β=-.172, p<.05) had significant effects on online design studio class satisfaction (Table 3). The higher the sense of teaching and social presence, the safer and more accessible the online learning system, the more useful the teacher's demonstration was perceived to be, and lower the negative feelings toward COVID-19, the higher the satisfaction with the online studio class.

2) Satisfaction of Online garment construction studio class

A multiple regression analysis was conducted by defining students' affective response toward COVID-19, perceived usefulness of demonstration, and perceived teaching and social presence of the online class as the independent variables and defining online garment construction studio class satisfaction as a dependent variable. A significant regression equation was found (F(5,58)=17.138, p< .000), with an R_2 of .596. Students' satisfaction of an online garment construction studio class was significantly affected by the teaching presence (β=.292, p<.01) and social presence (β=.224, p<.05) of the online class, system stability (β=.301, p<.01), and perceived usefulness of demonstration (β=.259, p<.01). The higher the sense of teaching and social presence, the safer and more accessible the online learning system, and the more useful the professor's demonstration was perceived to be, the higher the satisfaction with the online garment construction studio class.

Table 3. Satisfaction of Online Design Studio Class

Dependent variable	Independent variable	*B*	*SE*	*Β*	*t*	*Sig.*
Satisfaction of online design studio class	Teaching presence	0.307	0.065	0.456	4.693	0.000
	Social presence	0.128	0.060	0.185	2.135	0.035
	Online learning system	0.128	0.063	0.179	2.041	0.044
	Perceived usefulness of demonstration	0.113	0.048	0.180	2.371	0.020
	Affective response toward COVID-19	-0.119	0.052	-0.172	-2.313	0.023
R^2 = .534, Adjusted R^2 = .508, F (5,89) =20.417 (p<.000)						

Table 4. Satisfaction of Online Garment Construction Studio Class

Dependent variable	Independent variable	*B*	*SE*	*Β*	*t*	*Sig.*
Satisfaction of online garment construction studio class	Teaching presence	0.254	0.091	0.292	2.782	0.007
	Social presence	0.198	0.081	0.224	2.444	0.018
	Online learning system	0.233	0.080	0.301	2.895	0.005
	Perceived usefulness of demonstration	0.230	0.082	0.259	2.787	0.007
	Affective response toward COVID-19	-0.046	0.072	-0.055	-0.634	0.529
R^2 = .596, Adjusted R^2 = .562, F (5,58) =17.138 (p<.000)						

Ⅴ. Conclusion

The purposes of this study were 1) to explore students' online fashion studio class experiences and 2) to investigate the effects of students' perceived teaching and social presence, perceived usefulness of demonstration, affective responses toward COVID-19, and the stability of online learning system on satisfaction of online fashion studio class. The results of this study are summarized as follows. First, respondents indicated that both the lecture clips and teacher's demonstrations were highly useful. Second, the majority of experimental labs (90%) and garment construction studio classes (70%) used pre-recorded lectures for the online class, while fashion design studio classes (CAD or design studio) had a high proportion of real-time lectures. Third, the frequently mentioned area of improvement for online fashion studio classes were online platform stability, video quality, the provision of a useful communication channel between teachers and students, immediate and meticulous feedback from teachers, and course contents (e.g., course material, assignments, evaluation methods) developed in consideration of an online environment, and provision of equipment (e.g., sewing machine) usage. A quality demonstration video clip filmed at an angle from which the demonstration can be properly observed should be provided. In a live online studio class, it will also be necessary to provide a video clip of the demonstration as students may miss the teacher's initial demonstration and cannot request an additional demonstration in real-time.

Fourth, students' satisfaction of online fashion design studio class was significantly affected by teaching and social presence, stability of online learning system, perceived usefulness of teacher's demonstration, and affective response toward COVID-19. Fifth, students satisfaction of an online garment construction studio class was significantly affected by teaching and social presence, stability of online learning system, and perceived usefulness of teacher's demonstration. Since teaching presence has been found to have a significant impact on class satisfaction for both fashion design and garment construction studio classes, teachers should develop measures to improve the student's perception of teaching reality in an online studio classes. Presenting clear learning objectives and course management methods is essential for students to effectively structure their learning and receive immediate feedback from teachers. This result supports previous works and reveals that teachers play a key role in students' successful learning and satisfaction in both online and offline courses (Kang, Lee, Hahn, & Lee, 2010; Kim, 2009; Kwon, 2011; Ladyshewsky, 2013; Sheridan & Kelly, 2010).

Social presence in online learning is also positively correlated with class satisfaction of Online design studio and Online garment construction studio classes, and this finding also supports previous research results (Alsadoon, 2018; Cobb, 2009). Increasing social presence through cooperative activities increases student satisfaction with online studio classes. For design studio classes, it is crucial for students to work with one another and provide mutual feedback. Therefore, it is important to develop teaching contents and methods that allow students to feel that they are part of the class and establish an online system with various functions to enhance the sense of social connection that can enable two-way student-teacher and student-student communication.

By focusing on the factors that affect student class satisfaction, online learning systems for fashion studio classes can be improved, and implementation can be strengthened to increase student satisfaction. However, this study has some limitations. Due to the nature of the fashion field, responses from various studio classes such as fashion design studios and textiles experiments were collected in this study, making it difficult to generalize and analyze fashion studio classes' findings. Thus, we examined fashion design and garment construction responses separately, which led to small sample sizes. Future studies will yield more in-depth results by extensively investigating a single area of a fashion studio. Also, in-depth interviews with students in each field (e.g., design, garment construction, textile experiment) should be conducted to extract additional variables in

each field's studio classes and identify factors affecting other dependent variables such as academic achievement and willingness to use them beyond class satisfaction.

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